



## Keeping Tennis Elbow at Arm's Length: Simple, Effective Strengthening Exercises

Robert P. Nirschl, MD, MS; Barry S. Kraushaar, MD  
THE PHYSICIAN AND SPORTSMEDICINE - VOL 24 - NO. 5  
- MAY 96

Tennis elbow involves damage to the forearm muscles and tendons. Rehabilitation from this painful condition usually includes rest, icing, stretching exercises, improving tennis technique, and using an elbow strap called a counterforce brace. But perhaps the most important part of rehabilitation is strengthening exercises, which both promote recovery and help keep tennis elbow from returning. Two types of exercise will help you regain strength: exercises with weights and exercises without.

**Exercises without weights.** Effective strengthening exercises without weights can be done with a thick rubber band and a tennis ball. Do these exercises first with your elbow bent at your side, then progress over time to doing the exercises with your arm out straight in front.

For the finger extension exercise, place a thick rubber band around your fingers and thumb near the base of your fingers. With your palm facing the floor, spread your fingers apart as much as possible. Hold for 3 seconds, then release. Repeat until your fingers and forearm grow tired. After this becomes easy, slide the rubber band closer to your fingertips. When you can readily do the exercise from the fingertips, graduate to a thicker rubber band.

To do the hand squeeze, hold a tennis ball in your palm. Squeeze the ball firmly and hold for 3 seconds, then relax. Repeat until your muscles grow tired. If this exercise is difficult at first, start with a foam ball or racquetball and progress to a tennis ball.

Do these two exercises several times each day. It's a good idea to have tennis balls and rubber bands in convenient places, like at your desk and by the telephone. Continue to do tennis ball and rubber band exercises through the duration of the weight training program described below.

**Exercises with weights.** Before each weightlifting session, work up a light sweat with 3 to 5 minutes of brisk walking, cycling, or jogging, or warm the elbow directly by using a hot pad. Also, progress gradually. This is extremely important to prevent reaggravating the injury. If you have been prescribed a counterforce brace, wear it while doing the following. Begin with no weight, and do a set of 10 to 15 repetitions (reps) daily. Once you can comfortably do 30 reps for two consecutive sets, use a 1-pound weight and go back to 10 to 15 reps. Work up to 30 reps. Over time, increase the weight in 1-pound increments to 3 pounds, then in 2-pound increments to 5 to 7 pounds. But work up to only 20 reps with 3-pound weights and above. At the 3-pound level, gradually work toward straightening your elbow (but not locking it) and not supporting your arm. Progress in each exercise at its own rate. You will achieve heavier weights faster on some than on others.

Ice your elbow for 10 to 20 minutes after each exercise session. Most important, do not cause pain. If any exercise causes pain, modify it by decreasing the weight, decreasing the number of reps, or reducing the range of motion. If you still feel exercise-related pain after taking one or more of these steps, check with your doctor or physical therapist.

Remember: This information is not intended as a substitute for medical treatment. Before starting an exercise program, consult a physician.

For more information on Tennis Elbow or other sports related injuries, contact the RehabWorks office in the O&C building, Room 1103, 867-7497.

Check out the RehabWorks web page for a step by step elbow and wrist protocol.

[http://rehabworks.ksc.nasa.gov/Basic\\_Basic\\_Elbow\\_and\\_Wrist.htm](http://rehabworks.ksc.nasa.gov/Basic_Basic_Elbow_and_Wrist.htm)

## Finger Sandwiches

Finger sandwiches are a quick and easy way to offer a nutrition-packed treat! Start with several kinds of bread such as whole-grain, sourdough, rye and pumpernickel; use one kind on top, another on the bottom, to vary the texture. For added appeal, cut sandwiches into triangles, quarters or finger-length strips.

- To keep moist, 1 to 2 hours before serving cover sandwiches with plastic wrap then lay a damp kitchen towel over the paper.

For fillings...

- Blend together reduced-fat cream cheese, chopped raisins (or other chopped dried fruit) and a bit of chopped walnuts. You could also flavor the cream cheese with orange zest. Spread on whole wheat bread.
- Spread reduced-fat cream cheese on slices of white bread and top with thin slices of smoked salmon, chopped red onion and fresh dill or capers.
- Spread a thin layer of gourmet mustard on rye, top with very thin slices of honey-baked ham and pickle. Add a small scoop of cranberry sauce.
- Top thin slices of smoked turkey with a small scoop of cranberry sauce between whole-grain bread.
- Layer thin slices of seedless, peeled cucumber and chopped watercress between bread slices. Lightly spread with reduced-fat cream cheese.
- Layer a thin slice of low-fat cheese on whole-grain bread; top with strips of roasted red bell pepper, sliced red onion, and chopped fresh basil. *Source: Personal Best*

## Humble Legume is Full of Health

If someone says you're "full of beans," don't be offended. Today, it could mean you're very wise. Beans pack more protein than almost any other plant food, plus lots of fiber, B vitamins, zinc, complex carbohydrates, calcium and iron. And, they have no cholesterol and little fat. Other facts include:  
-They stabilize blood sugar. Beans create slow rises in blood sugar, so you need less insulin to control it. That's good news for everyone, because too much sugar and insulin promote artery damage and clogging. It's especially good news for diabetics and hypoglycemics.  
-They're rich in folic acid. Folic acid is an important factor for preventing strokes and heart disease. And, smokers deficient in folic acid are at greater risk for lung cancer.  
-They're great for dieters. Beans are good for weight control because they let your body use less insulin, and insulin lowers blood sugar quickly which could trigger hunger.

*Source: Total Wellness*



## FOR YOUR SPIRIT...

### JUST FOR TODAY

JUST FOR TODAY, I will try to live through this day only and not tackle my whole life problems at once. I can do something for one day, which would appall me if I felt I had to keep it up for a lifetime.

JUST FOR TODAY, I will be happy. This assumes to be true what Abraham Lincoln said, "Most folks are as happy as they make up their minds to be."

JUST FOR TODAY, I will adjust myself to conditions as they exist and not try to adjust everything to my own desires. I will take my luck as it comes and fit myself to it.

JUST FOR TODAY, I will try to strengthen my mind. I will study, I will learn something useful. I will not be a mental loafer. I will read something that requires effort, thought and concentration.

JUST FOR TODAY, I will exercise my soul. I will do someone a good turn and not get found out. I will do at least two things I don't want to do – just for exercise.

JUST FOR TODAY, I will be agreeable. I will look as well as I can, dress becomingly, speak softly, act courteously, criticize not a bit, not find fault with anything and not try to improve or regulate anyone but myself.

JUST FOR TODAY, I will have a program. I may not follow it exactly but I will have it. I will save myself from two pests, hurry and indecision.

JUST FOR TODAY, I will have a quiet half an hour all by myself and relax. During this half hour, I will try to get a better perspective on my life.

JUST FOR TODAY, I will be unafraid. Especially, I will not be afraid to enjoy what is beautiful and to believe that as I give to the world, so the world will give to me.

(author unknown)

## KSC Fitness Center Activities

### MARCH

#### National Nutrition Month

**Desktop Yoga:** Are you suffering from aches and pains associated with working at a computer or sitting at a desk? Is work causing you stress? Then "Desktop Yoga" is perfect for you. By attending the "Desktop Yoga" seminar, you will learn easy breathing techniques and yoga exercises that can be done at your desk. "Desktop Yoga" is a new and innovative form of yoga that can help solve everyday problems. This seminar will be held from 12noon – 12:30pm on March 22<sup>nd</sup>, 28<sup>th</sup>, and 29<sup>th</sup> and April 4<sup>th</sup> and 5<sup>th</sup>. Please call 867-7829 for the locations and to sign up.

#### Lunch and Learn: "Exercise As We Age"

Do you feel like you are getting too old to exercise? Are you getting enough calcium in your diet? Do you feel like every time you exercise you feel a new pain? This Lunch and Learn series focusing on "Exercise As We Age" will help you safely participate in your exercise routine, no matter what your age. Whether you are presently participating in an exercise routine, or even thinking of starting, this Lunch and Learn will guide you through the proper nutrition, stretches, and exercises needed to maintain a healthy body as we age. To sign up call 867-7497 or email Erik.Nason-1@ksc.nasa.gov

These classes will be held:

**March 1<sup>st</sup> at 11am in the OSB Room 3316**

**March 9<sup>th</sup> at 12noon in the CCAS Hangar Little L**

**March 16<sup>th</sup> at 12noon in HQ Room 2201**

### APRIL

#### National Humor Month

#### Lunch and Learn: "Dehydration and Exercise"

Many of us love to exercise, especially under the hot Florida sun. You know what we mean... the all day softball tournament, the 5 mile run at lunch time, the golf outing with your co-workers, your family picnic, or even...yard work! Whenever you enter an activity that increases your heart rate and causes your body's core temp to elevate, you are in jeopardy of dehydration. This Lunch and Learn will help you prepare for the upcoming heat wave. We will discuss signs and symptoms of dehydration and educate you on how to prevent dehydration from occurring during and after exercise. Don't miss the 1 hour long "Main Event" on April 6<sup>th</sup>!!!! Please call 867-7497 for the location and to sign up.

## Ask Miss Muscle

Q: What's the best combination of sets, repetitions and intensity for optimal arm training?

A: Whether you're training arms, legs, abs or any other body part, you should constantly vary the intensity and volume (sets and reps) to keep your muscles guessing. To gain mass, you must stress the muscles beyond what they're accustomed. In other words, lift heavy. Choose a weight that allows you to perform a given movement 6-10 times while exerting maximal effort. If you can squeeze out 12 or more reps, add more weight. Three or four sets of any one exercise should be more than sufficient to fatigue the muscle. Then begin another exercise that stresses the muscle in a slightly different way. Two or three exercises for biceps and triceps is a good rule of thumb for most weight lifters.

Intensity is a factor of weight – the heavier the weight, the greater the intensity – and time. Decreasing rest time between sets and exercises will increase the intensity of your workout and might make you feel like someone lit a fire under you. Try it once in a while.

TO MINIMIZE PAPER COSTS,  
PLEASE ROUTE THIS NEWSLETTER TO ALL EMPLOYEES AT THIS MAIL STOP.

WEBSITE: <http://fitness.ksc.nasa.gov>



## Cool Runnings

Creating a running schedule is an excellent way to organize your running. You'll have a better sense of where you're headed and how you're going to get there. A good schedule should also motivate you. Following your progress day after day, having designated runs to look forward to - these things begin to build on themselves. At a certain point, your schedule becomes more than an organizational tool. The trick, of course, is to put together the right schedule. If you set your sights too high, you'll soon get frustrated. If you aim too low, you won't be using your schedule as it can and should be used: to motivate. The following are some tips for creating the right plan for you.

### Keep it flexible

Don't get locked into the specific elements of your schedule. Let them evolve. If you have a race scheduled one weekend but something comes up, don't worry about it. Try to get in a fast run instead. You want a schedule that's specific enough to keep you interested, but not so specific that you get bogged down in the details.

### Here's the plan

The most effective schedule is one that culminates in a goal race. This provides focus. Once you pick a goal race several months to a year ahead, work each of the following into your game plan:

**Long runs.** Do one every other weekend. Non-marathoners should figure on going long every other weekend. Marathoners should too, until your long run reaches 18 miles, at which point you should go long every third week. Do long runs at least 2 minutes per mile slower than you could race that distance on that day. As a general rule, the long run for 5-K racers should top off at 6 to 10 miles; for 10-K racers, it should be 8 to 15 miles; for half-marathoners, 13 to 20 miles; for marathoners, 24 to 29 miles. Increase the distance of your long run by 1 to 2 miles each time. On weekends when you don't have a long run scheduled, do either a race or a run that's about half the length of your current long run.

**Races.** Pencil in some races on the weekends when you're not going long. Races are excellent for improving fitness (thus the phrase "racing your way into shape"). Just don't get carried away with them, as you don't want to get overtrained. A 5-K would be a good place to start. It's relatively short, it won't take too much out of you and you'll recover quickly. Races also allow you to accurately assess your fitness level, and they're great motivators.

**Speed sessions.** Competitive runners should schedule a speed session about once a week. These are for "time-goal" runners, or those looking to cover their race distance in a particular time. When you write these down in your calendar, try to be specific about the workouts.

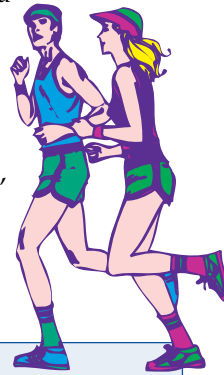
**Hill sessions.** Do these once a week, especially early on in your buildup phase. Hills are a great way to get stronger for speed sessions. Hill repeats are great for building leg strength. If you've been running for a while and have done a lot of

quality sessions, you can put these into your schedule right away. Beginners should wait two to four weeks till you get stronger, then start the hills. Gradually sloping hills are best, so you can maintain a good pace going up (aim for 5- to 10-K race pace). Beginners should look for a stretch of hill 50 to 100 meters long; those with hill experience should do 100 to 200 meters; experienced runners should go for 200- to 300-meter hills.

**Strides.** Do these twice a week. Strides are controlled accelerations done at 80 to 90 percent of maximum speed. Aim for 6 or 8 x 100 meters, with a walk or slow jog after each. Acceleration gliders don't take much time or effort to do, and they'll do wonders for your running form, especially for those of you who rarely run fast. You can do them before hills or speed sessions, or in the middle of an easy run (not the long run). Consider starting gliders on a slight downhill to increase turnover, then coasting on the flat. Not only will this make you a more efficient runner, you'll also get better at downhill running.

**Fun runs.** Last but definitely not least, schedule scenic runs, social runs and plain old fun runs.

Source: *Runners World*



## FOR YOUR MIND. .

### Affirmations For Personal Success

Affirmations are positive declarations that can help you learn how to replace negative thinking and create the life you want. To use affirmations you must:

- **believe what you're saying is happening.**
- **be repetitive and persistent.**
- **set aside a specific time each day.**

Here are several affirmations you can try. Have fun with them or make up some of your own. Select five affirmations that will help you achieve personal success and say them to yourself at least 10 times a day.

- I direct my efforts to my real priorities.
- I recommit myself to my goals every day.
- I believe in myself and my capacity to achieve great things.
- I see problems as opportunities of which I can take advantage.
- I appreciate my achievements and build on them.
- I rise above my limitations.
- I focus on what's possible.
- I relish on doing a good job.
- My confidence remains strong no matter what happens.
- I trust my intuition.
- Everything I need comes to me.
- I'm transforming old and limiting beliefs.
- I control my thoughts and they create my success.
- I'm always at the right place at the right time.
- I let go of the past with ease.
- I'm a natural winner.
- I have good health and high energy.

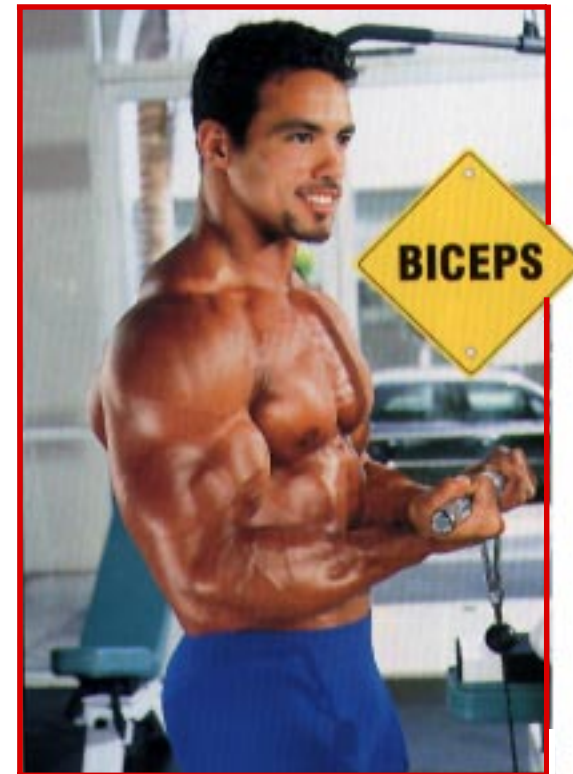
## Move of the Month

### Straight-Bar Cable Curl

Attach a straight bar with a revolving sleeve to a lower pulley and stand erect about 2 feet back, facing the unit. With a palms-up grip just inside shoulder width and your elbows tucked firmly into your sides, forcefully curl the bar as high as possible without pulling your elbows forward, then lower under control.

### Pressdown

Attach a pressdown bar or V-bar to a high pulley and stand erect about 1 1/2 feet back. With an overhand grip just inside shoulder-width apart and your upper arms stabilized by your sides throughout the movement, in a smooth motion press the bar toward your thighs (stop a couple of inches short) until your arms are fully extended, briefly squeezing your triceps. Allow the weight to bring your forearms just above parallel - no higher - before repeating.



## Pregnancy and Nutrition, Having a Good Start

Pregnancy is an exciting but scary time in a woman's life. There is so much to learn and do before the baby arrives. Having a healthy prenatal diet can be one of the best things a mother can do not only for herself, but for her baby as well. Good nutrition is essential during pregnancy because the unborn baby is completely dependent on the mother for nourishment. The addition of a prenatal vitamin prescribed by a physician allows the mother to have a good start toward a complete prenatal diet. The prenatal diet begins with the food guide pyramid as a base followed by a few key nutrients.

### Extra calories (300 per day)

Additional energy is required during pregnancy to support the metabolic demands of pregnancy and fetal growth. This does not translate to doubling caloric intake or "eating for two." It simply means that there is an increased need for approximately 300 calories per day toward the second trimester. The appropriate total calorie range for the average female during pregnancy is approximately 2,500 calories per day. The extra calories ensure the appropriate weight gain of 25 to 35 pounds, depending on the pre-pregnancy weight.

### Protein (75 to 100 grams per day)

Protein requirements increase with fetal growth. Protein helps manufacture the increased maternal blood volume and tissue. Good sources include meat, eggs, cheese, milk and soy products. Vegetarians can reach appropriate protein levels by consuming legumes and grain products.

### Calcium (1,200 milligrams)

An adequate amount of calcium ensures that the mother's bone mass is preserved while the baby's skeleton develops. Consuming enough calcium will help prevent osteoporosis later as well.

### Iron (30 milligrams)

There is an increase in the maternal blood volume, which leads to an increased need for iron. Iron produces hemoglobin, which aids in oxygen delivery to the mother and the placenta. If the diet is iron-poor, the fetus draws from maternal stores, possibly causing anemia. Most prenatal vitamins contain iron due to the difficulty of getting an adequate amount through diet alone. To increase absorption of iron from a supplement it is recommended to take the pill on an empty stomach or with juice if tolerated. Vitamin C aids in the absorption of iron, while caffeine hinders it.

### B Vitamins

The B vitamins, niacin, thiamin and riboflavin help metabolize energy as the needs increase during pregnancy. The need for folate doubles during pregnancy and getting enough during the first three months is especially important to protect against neural tube or spinal damage. The recommended amount is 400 micrograms per day. Folate-rich foods include citrus fruits and juices, dark green leafy vegetables, fortified breads and cereals, nuts, legumes and liver.

### Fiber

A common problem associated with pregnancy is constipation. This is due to the relaxation of muscles to accommodate the expanding uterus. An iron supplement can also aggravate the condition. It is important to eat a high-fiber diet to help alleviate or prevent the problem. Twenty-five to 30 grams of fiber each day is recommended, and this can be achieved by consuming plenty of fruits, vegetables and legumes.